

BOX 23-1 Endocarditis Prophylaxis for Dental Procedures**PROPHYLAXIS RECOMMENDED***

Dental extractions
 Periodontal procedures including surgery, scaling and root planing, probing, and recall maintenance
 Dental implant placement and reimplantation of avulsed teeth
 Endodontic (root canal) instrumentation or surgery only beyond the apex
 Subgingival placement of antibiotic fibers or strips
 Initial placement of orthodontic bands but not brackets
 Intraligamentary local anesthetic injections
 Prophylactic cleaning of teeth or implants where bleeding is anticipated

PROPHYLAXIS NOT RECOMMENDED

Restorative dentistry[†] (operative and prosthodontic) with or without retraction cord[‡]
 Local anesthetic injections (nonintraaligamentary)
 Intracanal endodontic treatment; post placement and buildup
 Placement of rubber dams
 Postoperative suture removal
 Placement of removable prosthodontic or orthodontic appliances
 Creation of oral impressions
 Fluoride treatments
 Orthodontic appliance adjustment
 Shedding of primary teeth

Adapted from American Academy of Pediatric Dentistry: *Reference manual 2002-03*, Chicago, 2002, The Academy.

*Prophylaxis is recommended for patients with high- and moderate-risk cardiac conditions.

[†]This includes restoration of decayed teeth (cavity filling) and replacement of missing teeth.

[‡]Clinical judgment may indicate use in selected circumstances that may cause significant bleeding.

BOX 23-2 Cardiac Conditions Associated with Endocarditis**PROPHYLAXIS RECOMMENDED**

High-risk category
 Prosthetic cardiac valves, including bioprosthetic and homograft valves
 Previous bacterial endocarditis
 Complex cyanotic congenital heart disease (e.g., single-ventricle states, transposition of the great arteries, tetralogy of Fallot)
 Surgically constructed systemic pulmonary shunts or conduits
 Moderate-risk category
 Most other congenital cardiac malformations (other than above and below)
 Acquired valvar dysfunction (e.g., rheumatic heart disease)
 Hypertrophic cardiomyopathy
 Mitral valve prolapse with valvar regurgitation and/or thickened leaflets

PROPHYLAXIS NOT RECOMMENDED

Negligible-risk category (no greater than in the general population)
 Isolated secundum atrial septal defect
 Surgically repaired atrial septal defect, ventricular septal defect, or patent ductus arteriosus (without residua beyond 6 months)
 Previous coronary artery bypass graft surgery
 Mitral valve prolapse without valvar regurgitation
 Physiologic, functional, or innocent heart murmurs
 Previous Kawasaki disease without valvar dysfunction
 Previous rheumatic fever without valvar dysfunction
 Cardiac pacemaker (intravascular and epicardial) or implanted defibrillator

Adapted from American Academy of Pediatric Dentistry: *Reference manual 2002-03*, Chicago, 2002, The Academy.

and fewer than 15% of patients who develop infective endocarditis had dental or medical treatment in the 3 months before their diagnosis. Fewer than 4% of cases of infective endocarditis are associated with dental treatment. With only one large dose of antibiotics, routine restorative and surgical dental procedures can be safely completed.

DENTAL MANAGEMENT

Parents of patients with cardiac risks typically lack knowledge about endocarditis even after being

informed during routine cardiology visits. Hayes and Fasules⁹ report a deficiency of knowledge among dentists regarding the indications for prophylaxis and the antibiotic regimen required to prevent endocarditis. Before initiating care, the dentist should obtain a thorough medical and dental history, perform a physical examination, formulate a complete treatment plan, and discuss the treatment with the child's physician or cardiologist. Behavior management techniques are useful, and conscious sedation and nitrous oxide-oxygen analgesia have also proved beneficial in reducing anxiety in such

This wallet card is to be given to patients by their physician. Healthcare professionals: Please see back of card for reference to the complete statement.

Name: _____
 _____ needs protection from
BACTERIAL ENDOCARDITIS because
 of an existing **HEART CONDITION**
 Diagnosis: _____
 Prescribed by: _____
 Date: _____

Dental procedures for which endocarditis prophylaxis is recommended¹

- Dental extractions
- Periodontal procedures including surgery, scaling, and root planing, probing, and recall maintenance
- Endodontic (root canal) instrumentation or surgery only beyond the apex
- Subgingival placement of antibiotic fibers or strips
- Initial placement of orthodontic bands but not brackets
- Intraligamentary local anesthetic injections
- Prophylactic cleaning of teeth or implants where bleeding is anticipated

¹Prophylaxis is recommended for patients with high- and moderate-risk cardiac conditions

Other procedures for which endocarditis prophylaxis is recommended

- Respiratory tract
 - Tonsillectomy and/or adenoidectomy
 - Surgical operations that involve respiratory mucosa
 - Bronchoscopy with a rigid bronchoscope
- Gastrointestinal tract²
 - Sclerotherapy for esophageal varices
 - Esophageal stricture dilation
 - Endoscopic retrograde cholangiography with biliary obstruction
 - Biliary tract surgery
 - Surgical operations that involve intestinal mucosa
- Genitourinary tract
 - Prostatic surgery
 - Cystoscopy
 - Urethral dilation

²Prophylaxis is recommended for high-risk patients; it is optional for medium-risk patients.

Prophylactic Regimens for Dental, Oral, Respiratory Tract, or Esophageal Procedures. (Follow-up dose no longer recommended.) Total children's dose should not exceed adult dose.

I. Standard general prophylaxis for patients at risk:

Amoxicillin: Adults, 2.0 g (children, 50 mg/kg) given orally one hour before procedure.

II. Unable to take oral medications:

Ampicillin: Adults, 2.0 g (children 50 mg/kg) given IM or IV within 30 minutes before procedure.

III. Amoxicillin/ampicillin/penicillin allergic patients:

Clindamycin: Adults, 600 mg (children 20 mg/kg) given orally one hour before procedure. -OR-
 Cephalexin* or Cefadroxil*: Adults, 2.0 g (children 50 mg/kg) orally one hour before procedure -OR-
 Azithromycin or Clarithromycin: Adults, 500 mg (children 15 mg/kg) orally one hour before procedure.

*Cephalosporins should not be used in patients with immediate-type hypersensitivity reaction to penicillins.

IV. Amoxicillin/ampicillin/penicillin allergic patients unable to take oral medications:

Clindamycin: Adults, 600 mg (children 20 mg/kg) IV within 30 minutes before procedure. -OR-
 Cefazolin*: Adults, 1.0 g (children 25 mg/kg) IM or IV within 30 minutes before procedure.

Cardiac Conditions Associated with Endocarditis:

High-risk category:

- Prosthetic cardiac valves, including bioprosthetic and homograft valves
- Previous bacterial endocarditis
- Complex cyanotic congenital heart disease (e.g., single ventricle states, transposition of the great arteries, tetralogy of Fallot)
- Surgically constructed systemic pulmonary shunts or conduits

Moderate-risk category

- Most other congenital cardiac malformations (other than above)
- Acquired valvar dysfunction (e.g., rheumatic heart disease)
- Hypertrophic cardiomyopathy
- Mitral valve prolapse with valvar regurgitation and/or thickened leaflets

Prophylactic Regimens for Genitourinary/Gastrointestinal Procedures:

I. High-risk patients:

Ampicillin plus gentamicin: Ampicillin (adults, 2.0 g; children 50 mg/kg) plus gentamicin 1.5 mg/kg (for both adults and children, not to exceed 120 mg) IM or IV within 30 minutes before starting procedure. 6 hours later, ampicillin (adults, 1.0 g; children, 25 mg/kg) IM or IV, or amoxicillin (adults, 1.0 g; children, 25 mg/kg) orally.

II. High-risk patients allergic to ampicillin/amoxicillin:

Vancomycin plus gentamicin: Vancomycin (adults, 1.0 g; children, 20 mg/kg) IV over 1-2 hours plus gentamicin 1.5 mg/kg (for both adults and children, not to exceed 120 mg) IM or IV. Complete injection/infusion within 30 minutes before starting procedure.

III. Moderate-risk patients:

Amoxicillin: Adults, 2.0 g (children 50 mg/kg) orally one hour before procedure. -OR-
 Ampicillin: Adults, 2.0 g (children 50 mg/kg) IM or IV within 30 minutes before starting procedure.

IV. Moderate-risk patients allergic to ampicillin/amoxicillin:

Vancomycin: Adults, 1.0 g (children 20 mg/kg) IV over 1-2 hours. Complete infusion within 30 minutes of starting the procedure.

NOTE: For patients already taking an antibiotic, or for other special situations, please refer to the full statement referenced below.

Health Care Professionals—Please refer to these recommendations (endorsed by the American Dental Association and American Society for Gastrointestinal Endoscopy) for more complete information as to which patients and which procedures need prophylaxis.



The Council on Dental Therapeutics of the American Dental Association has approved this statement as it relates to dentistry.

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American Heart Association

Fighting Heart Disease and Stroke

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FIG. 23-14. Patient education card supplied to all patients with congenital and rheumatic heart disease at James Whitcomb Riley Hospital for Children, Indianapolis, Ind. (From American Heart Association: *Prevention of bacterial endocarditis: recommendations by the Committee on Rheumatic Fever, Endocarditis, and Kawasaki Disease*, JAMA 277:1794-1801. Circulation. July 1, 1977. © 1997, American Medical Association. Used with permission.)